REMARKS

Reconsideration and allowance of the subject patent application are respectfully requested.

Applicant acknowledges with appreciation the indication that claims 96, 120 and 144 contained allowable subject matter.

While not acquiescing in the rejections or in the characterizations of the references made in the office action, certain amendments are made to the claims.

In amended claim 73, the feature that the variation arrangement comprises means programmed to vary frequency of the pulses is based on previous claim 78. The frequency discontinuity greater than 60 Hz is disclosed in previous claim 81 and in the last three lines of paragraph [0061] of the present application as published by the USPTO (publication no. US 2006/0052845). The term "discontinuity" is used in the last two lines of paragraph [0050] of US 2006/0052845 and in the fourth line of paragraph [0060]. The feature concerning the sub-phases which form a sequence of pulses and which have non-constant frequencies before the frequency discontinuity is clearly and unambiguously shown in Figures 1, 2, 3, 8 and 9, as well as in the corresponding portions of the description. The above-mentioned Figures show that each sequence is formed by a number of sub-phases and that the frequencies of the sub-phases preceding the discontinuity are non-constant. The sub-phases forming a sequence are also mentioned at the beginning of paragraph [0047] of US 2006/0052845.

Similar amendments have been made to claim 97 (which now incorporates the features of claims 102 and 105) and to claim 121 (which now incorporates the features

of claims 126 and 129).

Claims 78-81, 96, 102-105, 120, 126-129 and 144 have been canceled without prejudice or disclaimer.

The discussion below makes reference to the amended claims.

Claims 73-81 and 84-95 were rejected under 35 U.S.C. Section 102(b) as allegedly being "anticipated" by Tannenbaum (U.S. Patent No. 4,977,895).

Claim 73 is directed to an electro-stimulation apparatus comprising, among other things, means programmed to vary frequency of the pulses by causing between two consecutive sub-phases a frequency discontinuity greater than 60 Hz preceded by sub-phases having non-constant frequencies. Hence, the apparatus according to claim 73 is not merely capable of causing a frequency discontinuity greater than 60 Hz preceded by sub-phases having non-constant frequencies. On the contrary, such apparatus is specifically programmed so as to apply the claimed frequency variation.

Tannenbaum discloses a neuro-stimulator device comprising a pulse generator block that provides a pulse output at a master frequency (A) and a carrier frequency (B), each of which can be determined by adjustment of respective switches (12, 14). As disclosed in column 5, lines 31-41, several ranges of master frequency (A) are available, for example 25 to 125 pulse/sec or 180 to 500 pulse/sec. The carrier frequency (B) can either be 1000 pulse/sec, 2500 pulse/sec or 4000 pulse/sec (see column 5, lines 45-47).

Although Tannenbaum mentions that the master frequency (A) can be varied in a range which is larger than 60 Hz, Tannenbaum does not disclose means programmed to vary frequency of the pulses by causing between two consecutive sub-phases a

frequency discontinuity greater than 60 Hz, preceded by sub-phases having non-constant frequencies.

Tannenbaum merely teaches that the frequency of the applied pulses can be varied between a lower limit and an upper limit. However, frequency can be varied between the lower limit and the upper limit in infinite ways, for example continuously, or with increments of 2 Hz, or with increments of 10 Hz, or with increments of 5 Hz etc. There is no indication in Tannenbaum that a frequency variation occurs by applying a frequency discontinuity greater than 60 Hz preceded by sub-phases having non-constant frequencies.

Claim 73 and the claims that depend therefrom are not anticipated by Tannenbaum.

Claims 73-95 were rejected under 35 U.S.C. Section 102(b) as allegedly being "anticipated" by Herbst (U.S. Patent No. 6,029,090).

Herbst discloses a multi-functional electrical stimulation system comprising a selector coupled to a plurality of different signal generators, each generator producing a pulse having a distinct shape. The parameters of the pulses are adjustable in regard to amplitude, duration, repetition rate and other variables. However, Herbst does not contain any specific teaching about how to vary the pulse parameters, particularly the frequency thereof. In other words, there is no disclosure in Herbst that frequency discontinuities greater than 60 Hz are applied to the patient.

Furthermore, Herbst does not explicitly teach that a frequency discontinuity occurs between two consecutive sub-phases. There is no indication in Herbst as to whether frequency is adjusted during treatment of the patient, or whether a preset

frequency is selected at the beginning of the treatment and then this frequency is kept constant for the whole duration of the treatment.

Because Herbst does not disclose means programmed to cause a frequency discontinuity greater than 60 Hz between two consecutive sub-phases, the frequency discontinuity being preceded by sub-phases having non constant frequencies, claim 73 and its dependent claims are not anticipated by Herbst.

Claims 97-105, 108-119, 121-129 and 132-143 were rejected under 35 U.S.C. Section 103(a) as allegedly being made "obvious" by Tannenbaum. For the reasons discussed above with respect to claim 73, Tannenbaum does not disclose sequences having the features of claims 97 and 121. Moreover, Tannenbaum provides no motivation to do so, particularly with regard to the frequency discontinuity greater than 60 Hz applied between two consecutive sub-phases and preceded by sub-phases having non constant frequencies. Tannenbaum merely contains a generic teaching about the possibility of varying frequency, without however giving any indication about how frequency can be varied. Consequently, Tannenbaum cannot make obvious the claimed subject matter.

Commonly assigned Italian patent application MI2000A001733 is cited in an Information Disclosure Statement submitted on even date herewith. This document discloses an electro-stimulation apparatus capable of applying to a patient sequences of pulses having a variable frequency. As shown in the last part of the sequence of Table 5, a frequency discontinuity of 40 Hz is applied between two consecutive sub-phases. However, no frequency discontinuity greater than 60 Hz is mentioned in MI2000A001733, nor is any such discontinuity suggested. Consequently, there is no

disclosure or suggestion of means programmed to vary frequency of the pulses by causing between two consecutive sub-phases a frequency discontinuity greater than 60 Hz preceded by sub-phases having non-constant frequencies as recited in the independent claims.

The pending claims are believed to be allowable and favorable office action is respectfully requested.

Respectfully submitted,

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